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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/787,303

02/27/2004

Takashi Tomiyama

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EXAMINER

BUTLER, PATRICK NEAL

ART UNIT

PAPER NUMBER

1742

MAIL DATE

DELIVERY MODE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/787,303	Applicant(s) TOMIYAMA ET AL.	
	Examiner PATRICK BUTLER	Art Unit 1742	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 May 2011.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3 and 11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1,3 and 11 is/are allowed.
- 6) ☐ Claim(s) _____ is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>31 May 2011</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 3, and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miura et al. (JP 2001-343874 A, translation by provided by Applicant on 31 May 2011 relied upon for citation) in view of Ferrigno (US Patent No. 3,024,209), Cahill et al. (U.S. Patent 3,387,071), and Garlington (US Patent No. 2,926,389).

With respect to Claim 1, Miura teaches making a cleaning blade (a process for producing a cleaning blade) (see [0001]) by providing impregnating a cleaning blade surface abutting a toner-carrying body with 4,4'-diphenylmethane diisocyanate (impregnating an isocyanate compound into the blade at least at a contact portion thereof, which said contact portion is to come into contact with a toner holding member; wherein the isocyanate compound is 4,4'-diphenylmethanediisocyanate) (see [0014] and [0052]) at a temperature equal to the temperature at which the isocyanate compound is a liquid (where the isocyanate compound is at a temperature at which it is in a liquid state) (see [0069]) and permeating the isocyanate through the blade to form a cured layer with the polyurethane resin (allowing the urethane resin that forms the blade to react with the isocyanate compound with which the blade stands impregnated, to form a cured layer below a surface of the blade that was contacted with the isocyanate

compound) (see fig. 1, [0014], [0017], and [0018]) made of allophanate bonds (wherein the cured layer is formed chiefly of allophanate linkages) (see [0017] and [0051]).

Miura does not appear to expressly teach drying a blade formed of a urethane resin so that the urethane resin has a water content of 1% by weight or less.

Ferrigno teaches that additives of a reaction with urethane and isocyanate should be free of moisture, or less than about 1% free moisture (urethane resin has a water content of 1% by weight), due to its reacting with the isocyanate (see c. 5, ll. 51-57). Moisture was avoided via drying (see c. 9, ll. 39-46). When these two aspects are considered together, Ferrigno's teaching is therefore to dry the agents in a reaction system of isocyanate and urethane.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Ferrigno's teaching of drying to prevent moisture in a reaction system of isocyanate and urethane with Miura's method of reacting urethane and isocyanate in order to minimize isocyanate unable to react with the urethane.

Miura does not appear to expressly teach after the impregnation, blowing warm air or hot air on the blade surface to remove the isocyanate compound remaining on the blade surface, the warm air or hot air having a temperature not lower than the melting point of the isocyanate compound.

Cahill teaches forming a urethane object, in this case a fiber, by using an excess of an isocyanate compound and removing this excess with hot air (see Cahill's Claims 4 and 5). Herein Cahill refers to excess extender, making reference to the reaction functionality of the isocyanate. Using a temperature above the melting point of the

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isocyanate compound, thereby maintaining flowability for the purpose of sheeting the fluid, would have been obvious as a matter of choice to one skilled in the art.

Miura and Cahill are combinable because they are concerned with a similar technical field, namely, urethane compositions (see Miura, [0013] and Cahill, Claim 4). It would have been obvious to one of ordinary skill in the art at the time the invention was made to include in the method of Miura the isocyanate removal processes as taught by Cahill in order to further support Miura's objective of removing excess isocyanate (see Miura, [0076]).

Miura does not appear to expressly teach further removing with a solvent the isocyanate compound remaining on the blade surface.

Garlington teaches using a solvent to dissolve uncured polyurethane from foam (further removing with a solvent the isocyanate compound remaining on the blade surface) (see c. 3, ll. 17-43).

Miura, Ferrigno, Cahill, and Garlington are combinable because they are concerned with a similar technical field, namely, urethane compositions (see Miura, [0013]; Ferrigno, c. 5, ll. 50-57; Cahill, Claim 4; and Garlington, c. 3, ll. 17-43). It would have been obvious to one of ordinary skill in the art at the time the invention was made to include in the method of Miura the isocyanate removal processes as taught by Garlington in order to further remove unreacted polyurethane (see Garlington, col. 3, lines 17-43) to further support Miura's objective of removing excess isocyanate (see Miura, [0076]).

With respect to Claim 3, Miura impregnating the cleaning blade by immersing the cleaning blade in a liquid of the isocyanate compound (wherein the step (2) is carried out by immersing the blade in an isocyanate compound bath) (see [0062]).

With respect to Claim 11, Miura teaches that the length L1 in the free length direction of the cured layer is 50% or less of the free length of the blade (wherein a length of the cured layer in a free length direction is 30% to 80% of a free length of the blade) (see fig. 2, [0024], and [0025]) and the thickness of the layer is .12-1.2 mm (see [0024] and [0028]).

Response to Arguments

Applicant's arguments filed 07 March 2011, 07 April 2011, and 13 May 2011 have been fully considered, but they are not persuasive.

Applicant argues with respect to the 35 U.S.C. § 112 rejections. Applicant's arguments appear to be on the grounds that:

1) Rejecting the claims based on the end points not being recited in the Specification is improper because the temperatures are within the range implied in Applicant's disclosure that a temperature of liquid isocyanate compound is used. Such disclosure is inclusive of 80 and 100 °C.

2) Rejection of the claim limitation of the temperature of the isocyanate compound is overcome by Applicant's Amendment to remove the claim limitation.

Applicant argues with respect to the 35 U.S.C. § 103(a) rejections. Applicant's arguments appear to be on the grounds that:

3) Oki's reaction on the surface of the urethane substrate with unreacted elements thereon (see c. 2, ll. 31-46) does not provide for the claimed step of impregnating an isocyanate compound into the blade or below the surface.

4) Removal of excess material is not required by Oki and is counter to Oki's teaching of requiring excess material to form a coating.

5) Miura does not disclose blowing warm air or hot air on the blade surface to remove the isocyanate compound.

The Applicant's arguments are addressed as follows:

1) Discussion of the claim limitation of the temperature of the isocyanate compound being 80 to 100 °C is moot in view of Applicant's amendment to delete the limitation in the Amendments filed 07 April 2011.

1 and 2) In view of Applicant's amendment to remove the claim limitation forming the basis for the 35 U.S.C. § 112 rejection, the Examiner withdraws the previously set forth 35 U.S.C. § 112 rejection as detailed in the Claim Rejections - 35 U.S.C. § 112 section of the Office Action dated 07 December 2010.

3 and 4) Applicant's arguments with respect to the previous grounds of rejection have been considered but are moot in view of the new ground(s) of rejection.

5) As recited above, Cahill is relied upon to teach blowing warm air or hot air on the blade surface to remove the isocyanate compound remaining on the blade surface:

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Cahill teaches forming a urethane object, in this case a fiber, by using an excess of an isocyanate compound and removing this excess with hot air (see Cahill's Claims 4 and 5).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to PATRICK BUTLER whose telephone number is (571)272-8517. The examiner can normally be reached on Mon.-Thu. 7:30 a.m.-5 p.m. and alternating Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christina Johnson can be reached on (571) 272-1176. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/P. B./
Examiner, Art Unit 1742

/Christina Johnson/
Supervisory Patent Examiner, Art Unit 1742